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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Keith R. D'ALESSIO et al.

Application No.: 09/430,289

Filed: October 29, 1999

Group Art Unit: 1772

Examiner: S. HON

Docket No.: 100497.02

For: POLYMERIC CONTAINERS FOR 1,1-DISUBSTITUTED MONOMER COMPOSITIONS

REQUEST FOR RECONSIDERATION

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

In reply to the Office Action mailed July 6, 2001, Applicants request reconsideration of the application in view of the following remarks.

Claims 1-59 are pending herein. By the Office Action, claims 6-8, 10-11, 15 and 18 are rejected under 35 U.S.C. §112; claims 1-20, 45-50, 56 and 59 are rejected under 35 U.S.C. §103; and claims 21-44, 51-55 and 57-58 are withdrawn from consideration.

An Information Disclosure Statement with ten Forms PTO-1449 was filed on January 31, 2000. However, Applicants have not received from the Examiner initialed copies of the Forms PTO-1449 to acknowledge the fact that the Examiner has considered the cited information. The Examiner is requested to initial and return to the undersigned a copy of the subject Forms PTO-1449. For the convenience of the Examiner, a copy of each of the subject forms is attached.

Applicants thank Examiner Hon for the courtesies extended their representative at the October 2 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

I. Restriction Requirement

The Restriction Requirement restricts between Group I (claims 1-20, 45-50, 56 and 59) and Group II (claims 21-44, 51-55 and 57-58). In response to the Restriction Requirement, Applicants previously elected the claims of Group I, with traverse. Confirmation of the election was filed in the U.S. Patent and Trademark Office on May 17, 2001. Applicants respectfully traverse the Restriction Requirement, and request that it be withdrawn.

The Restriction Requirement is traversed because the claims of Groups I and II are drawn to sufficiently inter-related inventions to warrant examination thereof in a single application. Group I is drawn to a combination including a specified container and a 1,1-disubstituted ethylene monomer composition contained in the container. Group II is drawn to a process for making such a container or combination Compare, for example, claim 1 (Group I) and claim 21 (Group II).

Where product and process claims are presented in the same application, Applicant may be called upon under 35 U.S.C. §121 to elect claims to either the product or process. MPEP §821.04. However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim depends from or otherwise includes all the limitations of an allowed product claim. Id.

In the present application, the method claims of Group II include all of the limitations of the product of Group I. In particular, all of the limitations of the independent product claim 1 of Group I are incorporated into the method of Group II.

Since the method claims of Group II include the limitations of the product claims of Group I, the method claims must be rejoined with the product claims once the product claims are allowed. Thus, to streamline prosecution and avoid delay, the Restriction Requirement should be withdrawn to permit concurrent examination of all of the pending claims. Applicants respectfully request reconsideration and withdrawal of the Restriction Requirement.

The Restriction Requirement is also traversed because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass a search of the subject matter of the remaining group. The prior art revealed by a search of the combinations and containers of Group I would overlap the prior art revealed by a search of the method for making such combinations and containers. Thus, although the classifications may be different, the subject matter is sufficiently overlapping that concurrent search of all of the claims does not create a serious burden.

If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent claims. MPEP §803. Applicants respectfully submit that there would be no serious burden on the Patent Office to examine all of the present claims because the subject matter of Groups I and II is sufficiently related that a search of any one group would encompass the search of the subject matter of the remaining groups. Thus, the Restriction Requirement is improper and should be withdrawn.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the Restriction Requirement.

II. Rejections Under §112

A. Claims 10-11

Claims 10-11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Office Action argues that the term "shelf-life" is unclear. Applicants respectfully traverse the rejection.

Applicants respectfully submit that the claims would not be considered indefinite by one of ordinary skill in the art in view of the disclosure of the present specification. In particular, one of ordinary skill in the art would readily understand the concept of shelf-life as referring to the viability of the product over an extended period of time before the product is

deemed unusable. Moreover, the term "shelf-life" is specifically defined in the present specification as follows:

> As used herein, shelf-life refers to the amount of time the container and composition therein can be held at approximately room temperature (21-25°C) without degradation of the composition and/or container occurring to the extent that the composition and container cannot be used in the manner and for the purpose for which they were intended. Thus, while some degradation to either or both of the composition and container can occur, it must not be to such an extent that the composition and/or container is no longer useable. Shelf-life can thus be limited by physical or aesthetic changes to the containers or products contained therein, by chemical reactions occurring within the composition being stored, by chemical reactions between the container and the composition being stored, by degradation of the container itself, and the like.

Page 3, line 26 to page 4, line 3.

The Office Action states that it is unclear whether the term means that the combination remains unchanged, and if so, whether the composition and the interior container surface remain unchanged upon initial contact. In response, Applicants respectfully submit that the specification and claims clearly describe that the "combination" has the specified shelf-life, and thus that the combination, i.e., the container and the composition, remain substantially unchanged at least within the bounds of the definition of shelf-life. Whether the interior container surface itself remains unchanged is not the issue, because the shelf-life referred to in the claims is the shelf-life of the combination.

Accordingly, claims 10-11 satisfy the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Claims 6-8 and 15

Claims 6-8 and 15 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Office Action argues that it is unclear what the differences are between the polyethylenes. Applicants respectfully traverse the rejection.

As is well known to one of ordinary skill in the art, "polyethylene" is a term that is used to broadly refer to a closely related group of polymer materials. However, within that

broad group, there are a number of well-known sub-groups of polymers, generally characterized by their density and/or molecular configuration. For example, attached hereto is a copy of a dictionary definition of "polyethylene" that describes the various types of polyethylene as are described in the claims. See Hawley's Condensed Chemical Dictionary, 13th Ed., pp. 897-98 (1997).

Accordingly, claims 6-8 and 15 satisfy the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

C. Claim 18

Claim 18 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Office Action argues that the halogen concentration referenced in the claim is not given any patentable weight because it is not defined by a finite value. Applicants respectfully traverse the rejection.

Claim 18 depends from claim 1, and specifies that the post-halogenated polymeric material "comprises a surface region and a sub-surface region, and wherein a halogen concentration in said surface region is greater than a halogen concentration in said sub-surface region." Applicants respectfully submit that the scope of claim 18 is not indefinite, and would be readily understood by one of ordinary skill in the art.

The rejection is based on the fact that no finite ranges are specified for the halogen concentration in either the surface or sub-surface regions. However, the mere breadth of a claim does not mean that the claim is indefinite. In re Robins, 166 USPQ 552, 556 (CCPA 1970). In the instant case, the claim merely specifies that there is a higher halogen concentration in the surface region of the polymer than in a sub-surface region. The specific concentrations or amounts are immaterial, so long as the concentrations meet the claim limitations. One of ordinary skill in the art would readily understand this meaning and scope of the claim, and thus would not find the claim indefinite.

Accordingly, claim 18 satisfies the requirements of 35 U.S.C. §112, second paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

III. Rejections Under 35 U.S.C. §103

A. Colvin

1. The Claimed Invention

Claims 1-4, 9, 13-14, 16-17, and 45-46 are rejected under 35 U.S.C. §103(a) over Colvin. Applicants respectfully traverse this rejection.

Independent claim 1 is directed to a combination including: a container comprising a polymeric resin matrix including at least one post-halogenated polymeric material, and a 1,1-disubstituted ethylene monomer composition contained in said container. Similarly, independent claim 45 is directed to a container containing an adhesive monomer composition, comprising: a container comprising a polymeric resin matrix including at least one post-halogenated polymeric material, and an adhesive monomer composition contained in said container. Independent claim 46 is directed to a combination including: a container comprising a polymeric resin matrix including at least one functionalized polymeric material, and a 1,1-disubstituted ethylene monomer composition contained in said container. Claims 2-4, 9,13-14, and 16-17 depend from claim 1. The claimed invention would not have been obvious over the cited reference.

The Office Action argues that Colvin teaches all of the limitations of the claimed invention. The Office Action further argues that any differences between the claimed invention and Colvin are only due to process limitations, which do not affect the claimed products. Applicants respectfully disagree.

2. Colvin Does Not Teach or Suggest Post-Halogenated or Functionalized Materials

Claims 1, 45 and 46 specifically require that the container comprises a polymeric resin matrix, which includes at least one post-halogenated polymeric material or at least one

functionalized polymeric material. Such containers are not taught or suggested by Colvin, and are different from the materials and containers taught by Colvin.

Colvin is described in the specification. As described at page 5, lines 1-16 and described in the Office Action, Colvin discloses a container to hold cyanoacrylate ester adhesives. The container has a body that is substantially impermeable to air and moisture to minimize deterioration of the contained adhesive, and has an opening formed of a thermoplastic resin characterized by a low surface free energy. Synthetic resins can be employed as the container material or as a coating on the internal surfaces of a container formed of some other material, provided the resin is selected to satisfy the critical requirements of the invention as regards air and vapor permeability and inertness with respect to initiation of polymerization of the cyanoacrylate monomers. Preferred thermoplastic resins are the halogenated hydrocarbon polymers, especially where the halogen is fluorine, such as polyhexafluoropropylene, polytetrafluoropropylene, polyvinyl fluoride, and polyvinylidene fluoride. Copolymers of ethylene with polymers of the type just named can also be used.

In contrast to the containers of Colvin, the containers of the claimed invention do not utilize pre-halogenated polymers. That is, whereas Colvin discloses the use of pre-halogenated materials such as polyhexafluoropropylene, polytetrafluoropropylene, polyvinyl fluoride, and polyvinylidene fluoride, the claimed invention requires the use of post-halogenated or functionalized polymeric materials. The post-halogenated materials are specifically defined in the specification as those polymers that are halogenated, such as fluorinated, subsequent to formation of the polymer material. Page 8, lines 27-29. Likewise, functionalized materials are defined as materials, other than the described post-halogenated materials, where a protective surface layer is provided, for example, by SO_3H, CO_2H, $CONR_2$, COX, CO_2R, SO_2X, SO_2NH_2, SO_2NR_2, or mixtures thereof. These materials are

thus distinct from the pre-halogenated materials of Colvin, where the container is molded using an already halogenated polymer material.

Nowhere does Colvin teach or suggest that the pre-halogenated materials could or should be substituted with post-halogenated or functionalized materials Instead, Colvin teaches only that a pre-halogenated polymer should be molded to form the container. Colvin does not teach or suggest that a two-step process should instead be used, where the container is first molded from a polymer material, and then the molded polymer container is subsequently halogenated or functionalized, as in the claimed invention.

3. The Claimed Post-Halogenated or Functionalized Materials Are Different from the Materials of Colvin

To overcome this deficiency of Colvin, the Office Action argues that the process steps (post-halogenated or functionalized) of the claimed invention do not distinguish over Colvin. The Office Action argues that the containers are presumed to be the same regardless of the means by which they are made. The Office Action provides no reasoning for this assumption. In fact, however, this assumption is incorrect, and the evidence demonstrates that the claimed containers are different from the containers of Colvin.

a. The Present Specification Teaches This Difference

In fact, Applicants submit that the containers of the claimed invention are significantly different from the containers of Colvin. This difference is specifically described in the present specification, which must be accepted as accurate by the Patent Office in the absence of any evidence to the contrary.

At page 20, line 29 to page 21, line 30, the specification describes the additional benefits provided to a container by the post-halogenation or functionalization treatment. In particular, the specification describes the belief that the post-halogenation or functionalization treatment results in residual acid being present in the container matrix, which provides a stabilization effect to a material contained within the container. The specification goes on to

describe that such residual acid is generally not present in containers made from pre-halogenated materials, due to the conventional purge processes used to make such containers.

Thus, the present specification clearly and unambiguously describes that the containers of the claimed invention, produced by post-halogenation or functionalization treatments, are different from containers made from pre-halogenated materials such as in Colvin.

b. Colvin Also Teaches This Difference

Furthermore, Colvin itself teaches that his pre-halogenated materials are different from the containers of the claimed invention. In particular, Colvin specifically claims that the containers have a surface free energy that "does not exceed about 35 dynes per cm." See Colvin at claim 1. Colvin further discloses that:

> An important distinguishing feature of the present invention resides in the provision on the container of the invention of dispensing surfaces of a polymeric thermoplastic resin, characterized by a low surface free energy. After careful research, it has been found that resins having this property contribute the unexpected result of inhibiting the cyanoacrylate ester against undergoing significant polymerization on or about these surfaces during or following dispensing of the resin under normal conditions of use.

Col. 3, lines 52-61 (emphasis added). Colvin thus teaches that a low surface energy is required in order to provide the desired goal of inhibiting polymerization.

In stark contrast to the disclosure of Colvin, the post-halogenation process of the claimed invention, such as post-fluorination, in fact results in a much higher surface free energy. For example, characteristics of the post-fluorination process are discussed in the enclosed "Frequently Asked Questions" available on the internet website of Fluoro-Seal, Inc., a company that specializes in post-fluorination processing.

For example, the attached materials demonstrate that the post-fluorination is a process where the substrate is exposed to elemental fluorine (page 1 of 9, question "What is the Fluoro-Seal process?"). The process provides a permanent molecular bonding that endures

for decades (page 1 of 9, question "How long will the treatment last?"). See also page 3 of 9, question "How long will the treatment last?".

The materials go on to describe that untreated polyethylene (PE) and polypropylene (PP) are low energy plastics, typically having a low surface free energy (dyne) reading of usually 30-32. See page 5 of 9, question "What is a dyne level test?". The Fluoro-Seal materials describe that the post-fluorination process in fact causes an increase in the surface free energy (dyne) level, providing values of 55 to over 80 dyne/cm^2, values that are in most cases higher than previously obtained by other treatment methods such as flame or corona treatment. See page 5 of 9, question "What is a dyne level test?" and page 6 of 9, question "What are the dyne levels of surface modified fluorinated surfaces?".

Still further, the Fluoro-Seal materials teach that the desired barrier properties are provided by the increased surface free energy. For example, the materials describe that the fluorination treatment results in increased wettability of the resins. See page 6 of 9, question "How does surface modification treatment affect the performance of adhesives?".[1]

Thus, the attached Fluoro-Seal materials, considered in combination with the disclosure of Colvin, demonstrates that the post-halogenated materials of the claimed invention are different from the materials of Colvin. Whereas the materials of Colvin have a low surface free energy, the post-fluorination treatment results in an increased surface free energy. Furthermore, Colvin teaches that the low surface free energy is required, and thus would not have motivated the use of a process known to instead increase the surface free energy.

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[1] In referring to "adhesives," the reference means the ability of adhesives to adhere to the material, for example, to apply a label to the material. The reference does not teach or suggest the use of the treated containers for containing 1,1-disubstituted ethylene monomer compositions.

c. Conclusion

The claimed invention thus provides significant and unexpected results over Colvin. Nowhere does Colvin teach or suggest that the use of pre-halogenated or functionalized materials would provide any different results or specifically the results of improved barrier properties and improved stabilization.

4. Conclusion

For at least these reasons, Colvin would not have rendered obvious the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Colvin in view of McIntire and Stehlik

Claims 5-6, 8, 10-12, 15, 18-20, 56 and 59 are rejected under 35 U.S.C. §103(a) over Colvin in view of McIntire and Stehlik. Applicants respectfully traverse this rejection.

For all of the reasons discussed above, the invention of independent claims 1, 45 and 46 would not have been obvious to one of ordinary skill in the art. Colvin fails to teach or suggest the use of pre-halogenated or functionalized materials, or the unexpected results in terms of barrier properties and stabilization that such materials provide.

McIntire and Stehlik are cited for various limitations of the dependent claims. However, regardless of their specific disclosures, McIntire and Stehlik fail to overcome the deficiencies of Colvin. In particular, neither McIntire nor Stehlik teaches or suggests the use of pre-halogenated or functionalized materials. Furthermore, neither McIntire nor Stehlik provides any motivation for one of ordinary skill in the art to have modified the disclosed containers of Colvin to practice the claimed invention.

For at least these reasons, any combination of Colvin, McIntire and Stehlik would not have rendered obvious the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

C. Colvin in view of Kvitrud

Claims 7 and 47 are rejected under 35 U.S.C. §103(a) over Colvin in view of Kvitrud. Applicants respectfully traverse this rejection.

For all of the reasons discussed above, the invention of independent claims 1 and 46 would not have been obvious to one of ordinary skill in the art. Colvin fails to teach or suggest the use of post-halogenated or functionalized materials, or the unexpected results in terms of barrier properties and stabilization that such materials provide.

Kvitrud is cited for various limitations of the dependent claims. However, regardless of its specific disclosure, Kvitrud fails to overcome the deficiencies of Colvin. In particular, Kvitrud fails to teach or suggest the use of pre-halogenated or functionalized materials. Furthermore, Kvitrud does not provide any motivation for one of ordinary skill in the art to have modified the disclosed containers of Colvin to practice the claimed invention.

For at least these reasons, any combination of Colvin and Kvitrud would not have rendered obvious the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

D. Colvin in view of Larson

Claims 47-50 are rejected under 35 U.S.C. §103(a) over Colvin in view of Larson. Applicants respectfully traverse this rejection.

For all of the reasons discussed above, the invention of independent claim 46 would not have been obvious to one of ordinary skill in the art. Colvin fails to teach or suggest the use of functionalized materials, or the unexpected results in terms of barrier properties and stabilization that such materials provide.

Larson is cited for various limitations of the dependent claims. However, regardless of its specific disclosure, Larson fails to overcome the deficiencies of Colvin. In particular, Larson fails to teach or suggest the use of functionalized materials for use in forming containers for containing a 1,1-disubstituted ethylene monomer composition, as claimed. Furthermore, neither Colvin nor Larson provides any motivation for one of ordinary skill in the art to have modified the disclosed containers of Colvin by using functionalized polymers instead of pre-halogenated polymers, to practice the claimed invention.

For at least these reasons, any combination of Colvin and Larson would not have rendered obvious the claimed invention. Reconsideration and withdrawal of the rejection are respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Joel S. Armstrong
Registration No. 36,430

WPB:JSA

Attachments:

Forms PTO-1449 (10)
Hawley's Condensed Chemical Dictionary, 13th Ed., pp. 897-98 (1997)
Copy of Frequently Asked Questions (FAQ) from Fluoro-Seal, Inc., Internet Website

Date: November 6, 2001

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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